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PARENT-CENTERED EDUCATION†

JOHN S. BAKER, JR.*

INTRODUCTION

Americans have traditionally viewed education as an essential adjunct to democratic government. Exploiting this attitude, the educational establishment has equated itself with the defense of democracy, even though those controlling education have deliberately distanced themselves from the electorate.¹ Through a system built on compulsory government-controlled schooling, professional educators have expanded their role in the shaping of children as the role of parents has diminished. Is this trend inevitable or reversible?

During the formative period, some would say the golden age, of our democracy, education centered around the parents. The state did not consolidate control over education until the twentieth century, just as literacy in the United States peaked.² State control made education more democratic by allowing local majorities to control the education of religious and racial minorities through compulsory inclusion in or exclusion from the state system.³ Although the Supreme Court

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3. Increasing state control over education in Massachusetts during the nineteenth century reflected anti-Catholic bias. See infra notes 23-28 and accompanying text. I am indebted to William Ball, Esq., a well-known constitutional litigator in the field of education, for material garnered from his brief in a Massachusetts case. For centuries before the Jim Crow era, which was given constitutional blessing in Plessy v. Ferguson, 163 U.S. 537 (1896), black Americans were precluded from receiving formal education. See Pitman, supra note 2, at 10.
eventually limited majoritarian control over matters of race and religion, the principle of control through compulsory attendance laws has continued. The current system, consisting of a variety of governmental controls (state and federal, legislative, judicial, and administrative), has produced unprecedented academic failure and social strife, all at great expense. Not surprisingly, a prestigious panel of educators has compared the current status of education to the devastation resulting from an enemy military attack. As a result, a rage for educational reform has swept the country. Unfortunately, almost all of these well-intended efforts have been directed at repairing the existing system; the myth that the present structure is a venerable democratic institution has insulated it from fundamental reform.

This paper discusses the centrality of parents to education by focusing on the ultimate, albeit unusual, form of parental involvement known as home schooling and suggests ways to promote the primacy of parents in education. The discussion questions the widespread blind faith in the democratic character of the current system—a system which in fact inhibits parental options in education. As one of its purposes, this paper distinguishes between the current system of government control and compulsion and other ways of providing universal education. It is not, however, the purpose of this paper to advocate the general substitution of home schooling for the current system. Rather, the point about home schooling is simply this: if "unprofessional teachers," such as parents teaching in the home, can consistently achieve better academic results than government schools, we should study what those parents are doing and why they are doing it. The successes of home schooling make it apparent that: (1) the current level of government control over education is neither essential nor beneficial to democratic government and (2) parental involvement in the education of children is not only beneficial but essential to correct the seemingly intractable problems plaguing our schools.

4. "If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war." The Nat’l Comm’n on Excellence in Educ., A Nation at Risk: The Imperative for Educational Reform 5 (1983).
I. Control over Education

A. The Transition from Parental to Governmental Control

Lacking historical perspective, Americans have forgotten that in the United States "universal compulsory schooling is a very recent social invention." In early American history, education in the home was customary and widespread. Children were educated by parents or tutors at home, in religious schools or apprenticeships, or not at all. As formal schooling in state-controlled institutions became the rule rather than the exception, education at home continued to exist in the unusual form of complete home schooling and in the more common form of parents supplementing or supporting formal schooling. Only gradually has state involvement in education evolved from facilitating and, where necessary, enforcing the obligation of parents to the point of displacing parental control over the education of children.

In 1642 the Colony of Massachusetts Bay enacted the first compulsory education act—a precedent to be followed by other colonies in New England. The "1642 statute made no provision for school or teachers. The parents or masters were the sole agents for the education of their children." Massachusetts enacted a compulsory school act in 1647, which established schools and payment for teachers. Neither act, however, made attendance compulsory. The responsibility for the choice of education remained with the parents. Government acted only to ensure that parents complied with their general obligation for education. During the late seventeenth century, all compulsory education laws in New England were repealed. After the United States gained independence, interest in education increased. Massachusetts was again first, expressly providing in its 1780 constitution power for the legislature to compel public support of education in the established Protestant religion and enacting in 1789 the

5. Pitman, supra note 2, at 10.
7. Id. at 11.
8. Id. at 20-21.
9. The Massachusetts Declaration of Rights provides:

As the happiness of a people, and the good order and preservation of civil government, essentially depend upon piety, religion, and morality; and as these cannot be generally diffused through a Community but by the institution of the public Worship of God, and of public instructions in piety, religion, and morality: There-
first state statute to require the establishment and financing of schools.\textsuperscript{10}

It often has been asserted that the Founding Fathers either did not concern themselves with or did not foresee the problems of public education—in particular those related to religion.\textsuperscript{11} In fact, Congress created the very foundation for the public school system from 1787 to 1789. Moreover, Congress did so because it considered religion, morality, and education intertwined. Beginning under the Articles of Confederation and continuing under the Constitution, Congress provided for public financing of education for the Northwest

fore, to promote their happiness, and to secure the good order and preservation of their government, the people of this Commonwealth have a right to invest their legislature with power to authorize and require, and the Legislature shall, from time to time, authorize and require, the several Towns, Parishes, precincts, and other bodies politic, or religious societies, to make suitable provision, at their own Expense, for the institution of the Public worship of GOD, and for the support and maintenance of public protestant teachers of piety, religion, and morality, in all cases where such provision shall not be made Voluntarily.

And the people of this Commonwealth have also a right to, and do, invest their legislature with authority to enjoin upon all the Subjects an attendance upon the instructions of the public teachers aforesaid, at stated times and seasons, if there be any on whose instructions they can Conscientiously and conveniently attend.

Provided notwithstanding, that the several towns, parishes, precincts, and other bodies politic, or religious societies, shall, at all times, have the exclusive right of electing their public Teachers, and of contracting with them for their support and maintenance.

And all monies paid by the Subject to the Support of public worship, and of the public teachers aforesaid, shall, if he require it, be uniformly applied to the support of the public teacher or teachers of his own religious sect or denomination, provided there be any on whose instructions he attends; otherwise it may be paid towards the support of the teacher or teachers of the parish or precinct in which the said monies are raised.

And every denomination of Christians, demeaning themselves peaceably, and as good Subjects of the Commonwealth, shall be equally under the protection of the Law: And no subordination of any one sect or denomination to another shall ever be established by law.


Territory and later in other territories. The Northwest Ordinance, written by men from Massachusetts, followed both the system of school financing and the philosophy of education contained in the Massachusetts Constitution. In acts related to the Northwest Ordinance, Congress set aside land for public schools and also other land "for purposes of religion." As in Massachusetts, religion and education were bound together. The Northwest Ordinance made this explicit: "[R]eligion, morality, and knowledge, being necessary to good government and for the happiness of mankind, schools and the means of education shall forever be encouraged."

In the early years of the Republic, Congress encouraged religion and education, but, unlike Massachusetts, did so in the spirit of pluralism. Congress provided for full religious freedom in the Northwest Ordinance, whereas Massachusetts limited freedom to Christians. Congress gave money to schools operated by various religious sects for the purpose of educating Indians. In the land acts, Congress prevented

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12. See Law & Public Education, supra note 1, at 27, 32. Compare the provision in the 1780 Massachusetts Constitution (quoted supra in note 9) which was written by John Adams with the language from the Northwest Ordinance, infra note 14.

13. The Land Ordinance of 1785 "reserved the lot No. 16, of every township, for the maintenance of public schools . . . ." Ordinance of May 20, 1785, 1 Laws of the United States 563, 565 (J. Bioren & W. Duane ed. 1815). An earlier draft specified the section adjoining section 16 in each township be reserved "for the support of religion . . . . to be applied forever according to the will of the majority of male residents. . . . ." 28 J. Continental Cong. 254-55 (Library of Congress ed. 1933) (emphasis added). Although the Land Ordinance as enacted did not contain that provision, subsequent acts pursuant to the Act did reserve lot No. 29 "for purposes of religion," but without reference to the majority.


15. Contrary to current belief, Congress did "encourage" religion. Supreme Court Justice Joseph Story wrote that the Northwest Ordinance "provides for the encouragement of religion, and education, and schools . . . ." 2 J. Story, Commentaries on the Constitution § 1318, at 192 (3d ed.).

16. Art. 1 provided: "No person, demeaning himself in a peaceable and orderly manner, shall ever be molested on account of his mode of worship or religious sentiments, in the said territory." Ordinance of July 13, 1787, art. 1, 1 Laws of the United States, supra note 14, at 478. Compare this statement with the last part of art. III from the Massachusetts Declaration of Rights, supra note 9, which refers to "every denomination of Christians."

funds for religion from being controlled by religious majorities, leaving them to be shared equally among different religious groups.\(^8\) It was not until after the Civil War that Congress began to depart from the principle of pluralism in religion and education.\(^9\)

In the second and third generations under the Constitution, Congress and the states encouraged education, while exercising little control over it. Despite the absence of compulsory education laws, noncompulsory schooling became widespread before the Civil War. This non-system produced high levels of literacy and attendance.\(^20\) Devotion to democratic principles led to the concept of the common school for all (whites) without the component of compulsion.\(^21\)


19. In 1876 President Grant called on Congress to propose a constitutional amendment which would make the contents of the first amendment applicable to the states, with the addition of barring public funds for religious schools. The Blaine Amendment, named after Representative James G. Blaine, later Speaker of the House and Republican candidate for the presidency, was passed by the House of Representatives, but failed to get the required two-thirds vote in the Senate. Starting in 1876, Congress required all newly admitted states to incorporate a provision barring funds for religious schools in their constitutions. There were several versions of the "Blaine Amendment," one of which provided:

No State shall make any law respecting an establishment of religion, or prohibiting the free exercise thereof; and no religious test shall ever be required as a qualification to any office or public trust under any State. No public property, and no public revenue of, nor any loan of credit by or under the authority of, the United States, or any State, Territory, District, or municipal corporation, shall be appropriated to, or made or used for, the support of any school, educational or other institution, under the control of any religious or anti-religious sect, organization or denomination, or wherein the particular creed or tenets of any religious or anti-religious sect, organization, or denomination shall be taught. And no such particular creed or tenets shall be read or taught in any school or institution supported in whole or in part by such revenue or loan of credit; and no such appropriation or loan of credit shall be made to any religious or anti-religious sect, organization, or denomination, or to promote its interests or tenets. This article shall not be construed to prohibit the reading of the Bible in any school or institution; and it shall not have the effect to impair rights of property already vested . . .

McCollum v. Board of Educ., 333 U.S. 203, 219 n.6 (1948) (Frankfurter, J., concurring) (emphasis added).


though Massachusetts adopted the first compulsory attendance law in 1852, it was not until the 1920s that compulsory attendance laws were generally enforced. By then, even the southern states, which had prevented education for blacks before the Civil War, had enacted compulsory attendance laws.

The tightening of state control in Massachusetts resulted from religious bigotry. In 1852, Massachusetts passed the first compulsory attendance requirement. The development of such laws has been characterized as representing a concern for "Americanizing" the wave of new immigrants coming into the country. Behind such fine-sounding democratic rhetoric, however, stood the anti-Catholic attacks of the Know-Nothing party. In Massachusetts, where resentment against Irish-Catholic residents was strong, the party captured almost complete control over the government of the state in 1854. The year before, this sentiment was evident in the state constitutional convention debates over a proposal to bar funds for sectarian schools. Along with the no-aid view was the expectation that Catholics would convert to Protestantism by attending public schools. Although generally poor, the Irish and other Catholics established their own schools in Massachusetts and elsewhere as a matter of promoting Catholicism and resisting the Protestant indoctrination of the public schools. The response of Massachusetts in 1853, followed by a number of other states, was to bar any state aid to sectarian, i.e. Catholic, schools. A national hysteria concerning Catholic schools spread to Congress, which came close to passing a constitutional amendment to the same effect, while retaining the Protestant character of public schools. Beginning in 1876, Congress did require newly admitted states to bar aid to sectarian schools. One state (Oregon) went so far as to require attendance at public schools—an action overturned by the famous case, Pierce v.

22. L. Kotin & W. Aikman, supra note 6, at 31.
24. L. Kotin & W. Aikman, supra note 6, at 26-27.
26. 3 Debates in the Massachusetts Convention, 613-26 (1853). As part of an extensive debate, for example, Mr. Ball of Upton stated, "Open your doors wide to all, and banish sectarianism from your schools, and Catholics will become Protestants through the influence of these schools." Id. at 622.
27. See supra note 19.
Society of Sisters.\textsuperscript{28}

The purpose of compulsory, state-controlled schooling was to homogenize the population in the name of democracy. In Massachusetts, Catholics were not the only “problem” for this process; during this period the Massachusetts Supreme Court also upheld the segregation of blacks in a case relied on by the U.S. Supreme Court in \textit{Plessy v. Ferguson}.\textsuperscript{29} In the north as well as in the south, blacks, like Catholics, ended up in separate schools, but not by their choice. Those who would not or could not be homogenized were excluded—with or without their consent. In the 1920s the enforcement of compulsory attendance laws coincided with white Protestantism reasserting its dominance over public schools. The breakdown of this control during the 1950s and 1960s as a result of \textit{Brown v. Board of Education}\textsuperscript{30} and the “prayer decisions”\textsuperscript{31} has not pacified public schools; they have remained a battleground, with more groups vying for cultural control.\textsuperscript{32}

Among the most independent individuals attempting to escape from external controls are home schoolers. Since the 1970s, the number of home schools has grown dramatically.\textsuperscript{33} While this growth is a relatively recent phenomenon, rural students, students living abroad, unwed mothers, and others with special needs have been regularly schooled at home. These special cases have been based on necessity, not resistance to state control. Since the 1970s, however, the growing home-schooling movement has reflected a conscious rejection of state control.

\begin{thebibliography}{9}
\bibitem{28}268 U.S. 510 (1925).
\bibitem{29}Plessy v. Ferguson, 163 U.S. 537, 544 (1896) (citing Roberts v. City of Boston, 59 Mass. (5 Cush.) 198 (1849)).
\bibitem{30}347 U.S. 483 (1954).
\bibitem{32}For a summary of the types and volume of litigation and regulation affecting schools for the last thirty years, see \textit{Law \\

\end{thebibliography}
B. The Consolidation of Governmental Control Through Compulsory Attendance

In taking aim at government control over education, this paper distinguishes that target from a system of government-financed schooling made available to all without compulsion. The core of the current system is not equal opportunity but state control. The combination of compulsory attendance laws; state financing of public, but not private, schools; and state regulation of most private religious and home schools are the means to the government's consolidation of power over education.

Of those three factors, compulsory attendance laws represent the key to control. While compulsory attendance laws have been ineffectual at times for lack of enforcement, potential criminal penalties for the parents and possible institutionalization for the child as a truant constitute a potent threat to would-be violators. The public may not object generally to the state exercising such control, probably because they identify compulsory attendance with education for all. Compulsory attendance, however, does not guarantee universal education, as the failures of the current system certainly demonstrate. On the other hand, a state may provide, and even compel, education without compelling attendance, as in colonial Massachusetts. Compulsory attendance laws are at best a means to the desired end of universal education. As the educational day has lengthened and academic performance has declined, it is evident that compulsory attendance is no longer a means reasonably related to the end of universal education. Compulsory attendance laws have been an effective means to two other ends: control over financing of education and regulation of private, religious, and home schools.

1. Compulsory Attendance and School Finance

Virtually every state requires young persons to receive schooling during certain years of their life, typically from six through sixteen. By compelling attendance in school, the state must somehow provide, and therefore finance, the op-
portunity to comply with this requirement.\textsuperscript{37} It does not follow from this, however, that the state must own and operate its own schools. The state could make grants available, at least to nonreligious private schools, to students, or to parents, or could utilize tax credits or some combination of these. Common sense and experience, however, suggest a strong relationship between financing and control.

Compulsory attendance forms the foundation for financing under the current system. As suppliers of the money, the state wants control which it can best accomplish through its own schools. The amount of funding, in turn, depends on the number of children in attendance. Public school personnel predictably oppose proposals to decrease funding, and they support measures to increase attendance, including compulsory attendance laws. Among the proposals most opposed by public school personnel are ones which would alter the current system of financing to include tuition-vouchers or tax-credits for parents whose children attend nonpublic schools. The amount of governmental control which would follow funding of nonpublic schooling remains uncertain.\textsuperscript{38} The control might not be greater than that which the state currently has over many private schools due to the compulsory attendance laws.

Compulsory attendance laws skew the debate over school financing. It has been said that families who opt to put their children in private schools have exercised their freedom of choice to pay tuition on top of taxes. The state, however, has created the conflict which leaves parents little choice under the compulsory attendance laws. Originally, compulsory attendance laws allowed Protestant majorities to force choices on Catholics. With the exclusion of prayer from public schools, the conflict has continued along religious lines, with some Protestant sects opposed to other religious and nonreligious persons. The solution for many Protestant parents has

\textsuperscript{37} "[W]e need not belabor the fact that requiring parents to see that their children attend school under pain of criminal penalties presupposes that an educational opportunity will be made available to the children." Mills v. Board of Educ., 348 F. Supp. 866, 874 (D.D.C. 1972).

\textsuperscript{38} See Grove City College v. Bell, 465 U.S. 555 (1984) (which determined that even though a college refused all direct federal assistance, it was not entirely free from coverage under Title IX of the Education Amendments Act of 1972 because it enrolled students who themselves received federal education aid). But see the Civil Rights Restoration Act of 1987, Pub. L. No. 100-259, 102 Stat. 28 (1988) (effectively reversing Grove City).
been to avoid sending their children to public schools, just as many Catholics have traditionally done. In forcing this choice, government has made parents pay not only for the religious aspect of their education but also for a type of academic instruction which, due to regulation by the state, is similar to, even if somewhat better than, that provided by the state. In other words, even those who choose to pay twice are prevented from getting an education substantially different from that of the public schools.

Compulsory attendance laws have created, therefore, a second conflict for parents by increasing the costs of educational alternatives. While almost all parents would want their children educated regardless of compulsory attendance laws, they could do so in a variety of ways other than through the 180-day year of formal schooling. As discussed below, the amount of learning that actually occurs in conventional schools can be accomplished in a much shorter time in an informal setting. Indeed, literacy is not as high now as it was when the school year lasted but a few weeks. But for compulsory attendance laws that determine the length of the school day and year, more experimentation would be possible. As parents learned of successful alternatives, the state would find it more difficult to justify current levels of taxing for education. Beyond financing for those who could not afford education even with lower taxes, the state would have to satisfy voters of the cost-effectiveness and the equity of taxing and spending on education. Proposals for tax credits in return for educating children in other than state-financed and -controlled schools would likely draw greater support.

2. Compulsory Attendance and the Regulation of Nonpublic Schools

Even without controlling schools financially, the state has frequently used compulsory attendance laws to exercise control over private schools. Although state regulation of private, religious, and home schools has been limited by constitutional decisions, these decisions have recognized the states' "compelling interest" in requiring schooling and reasonably regulating many aspects of private education. The compelling interest is the achievement of universal education in a

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40. Pierce v. Society of Sisters, 268 U.S. 510 (1925), is a landmark decision for the rights of parents to control the education of their children. Even in that case, however, "[n]o question is raised concerning the power
democratic society. Of course, that end could be reached by compelling educational achievement, as measured by standardized testing. The repeal of compulsory attendance laws would leave state education bureaucracies without a plausible basis for much of the regulation of private educational institutions. Moreover, if the state simply required educational achievement, the results might well discredit the current system of state-financed schools.

In order to survive, the current system must limit competition and control the limited competition that does exist. The current system obviously limits competition from private schools by raising the cost to parents, who must pay tuition over and above the taxes they pay for government schools. If not for the religious motivation to start schools, the competition from private schools would be even less than it now is. Not so obviously, the religious aspect of the alternatives further limits competition, because religious schools serve only particular segments of the market. That is, families who desire religious schooling for their children are not likely to consider all of the available religious schools as potential alternatives because religious schools generally exist to serve particular religious denominations. Moreover, religious schools may represent an alternative only insofar as religious study and prayer are concerned. Some schools which exist primarily to provide religious education may not be concerned with providing a distinguished academic curriculum. Thus, some religious schools differ from good public schools only with regard to religion itself.

On the other hand, both religious and nonreligious private schools pursuing academic excellence are hindered by state regulations. Requirements regarding teacher certification, the length of the school year, course credits, and the like are geared toward the minimum level of competence. College professors may be "unqualified" to teach in an elementary or secondary school because they have not taken the required methods courses offered in our schools of education. While the state should be free to impose such requirements on its own schools, how compelling is the rationale for imposing them on private schools? The effect is to raise costs and inhibit the operation of private and religious schools.

Even though private and religious schools existed before government-controlled schools, they are portrayed today as of the State . . . to require that all children of a proper age attend some school." Id. at 534.
strange exceptions to what has become the accepted American model for education. This has been possible because the Protestant schools evolved into nonsectarian Protestant public schools, while their largest competitor, the Catholic system, arose as a minority school. Like Catholic schools, the recent rise of Fundamentalist Protestant schools represents a religious minority choosing religious schools over a secularized public education. Due to the religious character or the cost of many private schools, or both, defenders of the educational establishment have been able to dismiss these schools as bastions of religious indoctrination or elitism.

Home schooling poses a more serious challenge to the educational establishment because it cannot be identified with religious indoctrination or elitism. Many parents choose home schooling partly for religious reasons, but others do so for a range of other reasons. What unites home-school parents is a loss of faith in the powers of formal schooling. In addition, home schools do not enjoy the status of elite private schools. "Odd" would be a better description of the opinion many seem to have about home schools. Despite their image of peculiarity, home schools highlight the problems of the status quo better than either private or religious schools because the latter are forms of conventional schooling. Although the existence of private and religious schools assumes the right of parents to control the education of their children, private-school parents may be no more involved in their children’s education than the parents of children in public schools. The parents of children schooled at home are necessarily involved in the education of their children. Home-school parents often resist state control because they realize how it has displaced parents in the education of children. Home schooling, therefore, offers one the opportunity to examine parental control over education in practice as well as in theory.

II. Education by Parents in the Home

As this paper uses the terms, "parent-centered" education is broader than "home schooling." Home schooling refers to "a learning-teaching situation wherein children spend the majority of the conventional day in or near their home in lieu of attendance at a conventional institution of education. Parents or guardians are the primary educators of the chil-
Home schooling is an alternative to conventional schooling, whether public or private. Parent-centered education, on the other hand, refers to the primacy of parents in the education of their children. It involves parents taking responsibility for the teaching of their children, whether or not they do the formal teaching. Parents must at least teach their children informally, by conveying concepts of right and wrong, if they are actually to exercise their responsibility. Parent-centered education is perfectly consistent with those modes of formal schooling that do not attempt to displace parents.

Although home schooling is a rare phenomenon, parent-centered education need not be so rare. The amount of educating done by a parent varies from family to family, but it is undisputed that the parents' role in their child's education is strongly related to success in formal schooling. As the time spent in formal schooling has increased, the opportunities for education at home have decreased. Moreover, the increase in single-parent families and in the number of mothers of two-parent families working outside the home has reduced the time available for education in the home. There are nonetheless possibilities for increasing parent-centered education.

A. Who Home Schools and Why?

Estimates on the number of children in home schools range from ten thousand to one million. Although its growth since 1970 has been dramatic, the numbers do not exceed 1 percent of the school-age population and are unlikely to continue at the same rate of growth. Home schools will continue to be an alternative only for those who are willing to be considered social nonconformists. Nevertheless, the concerns of parents who choose home schooling are similar to the concerns of those parents who do not choose home schooling, but who wish for some alternative to those currently available.


43. Lines, supra note 33, at 510-11.
Existing studies indicate that parents choose home schooling for a variety of reasons. The common concern of such parents is the lack of influence they seem to have over their children's formal schooling. Many parents who home school do so at least in part for religious reasons. A number of Mormons, Seventh-Day Adventists, and Amish traditionally have opted for home schooling. The more recent movement has been among Fundamentalist and Evangelical Protestants who have lost the loyalty that they once felt for the public school system which they believe to have become infected with secular humanism. After breaking with public education, many parents opt for private religious schools, which now represent the largest growth sector among private schools, with others deciding to teach their children at home.

Not all parents who educate their children at home do so for religious reasons. As noted earlier, some parents choose home schooling instead of private schools for financial reasons. Others are opposed to state compulsion on nonreligious, philosophic grounds. The latter are also likely to be troubled by the low academic standards of public schools. These parents are often lumped together and labeled as ideologically "left," while religious families are placed on the ideological "right." In fact, there is no clear distinction between persons whose concerns are religious and those whose concerns are academic. Studies show parents are often motivated by several factors and may fall into both categories.

Unfortunately, there is not a large body of literature related to home schooling, and most of the available litera-

44. Id. at 510.
45. Id.
48. According to the classifications Pitman has created from reviewing the literature, "Home Schoolers tend to fall into three broad categories: religious, progressive, and academic, or, alternatively, Fundamental Christians, New Agers, and the Harvard-bounds." Pitman, supra note 2, at 12.
49. Ray reports that "[a]bout 85% of the literature closely related to [his] investigation was published in the 80s." B. Ray, supra note 41, at 3. Ray also publishes a quarterly newsletter, Home School Researcher, which reviews the literature, much of which is in unpublished dissertations.

Pitman reports, "The majority of the data-based research on home schooling consist [sic] either of self-report survey data which characterized
ture is relatively recent and not easily accessible. After reviewing the most recent studies, one researcher provided the following summary of the characteristics of home-school parents found in the various studies:

1. Both parents are actively involved; with the mother/homemaker as the teacher most of the time.
2. Parents have attended or graduated from college.
3. Total household income is $20,000-$30,000.
4. Over 60% regularly attend religious services.
5. Three children are in the family.
6. The learning program is flexible and highly individualized, involving both homemade and purchased curriculum materials.
7. Children are formally “schooled” 3-4 hours per day, and often spend extra time in individual learning endeavors.
8. They study a wide range of conventional subjects, with an emphasis on math, reading, and science.
9. The home school is operated for more than two years.
10. Home school is chosen for various reasons, including both cognitive and affective ones."

B. How Do Home Schoolers Perform Academically?

Brian Ray reviewed eleven empirical studies measuring the achievement levels of children schooled at home. All of these studies have been published since 1979 and “represent most of what has been done in terms of critical analysis of the home schooling parents’ views, procedures, motivations and sociodemographic variables, or case studies of one or more home school families.” Pitman, supra note 2, at 16. Only a “few . . . provide measurement data from tests and other instruments administered to children who are being home schooled.” Id. Summaries of the development of and data on home schooling have been regularly reported on in PHI DELTA KAPPAN. See generally Bumstead, Educating Your Child at Home: The Perchemlides Case, 61 PHI DELTA KAPPAN 97 (1979); Gordon, Home Tutoring Programs Gain Respectability, 64 PHI DELTA KAPPAN 398 (1983); Holt, School and Home Schoolers: A Fruitful Partnership, 64 PHI DELTA KAPPAN 391 (1983); Lines, An Overview of Home Instruction, 68 PHI DELTA KAPPAN 510 (1987); Lines, State Regulation of Private Education, 64 PHI DELTA KAPPAN 119 (1982); Moore, It Depends on Your Aim, 67 PHI DELTA KAPPAN 62 (1985); Smith, Gregory, & Pugh, Meeting Student Needs: Evidence for the Superiority of Alternative Schools, 62 PHI DELTA KAPPAN 561 (1981); Weaver, Negri, & Wallace, Home Tutorials v. the Public Schools in Los Angeles, 62 PHI DELTA KAPPAN 251 (1980).

50. B. Ray, supra note 41, at 40-41.
The individual studies showed that "those youth educated in the home school environment will generally do as well or better than their conventional school peers. The vast majority of home school people score well above average on achievement tests." Other studies have come to the same conclusion regarding the academic performance of home schoolers.

While "the research to date cannot be said to come close to proving . . . that the home school treatment is a causal factor of apparently elevated achievement," several reasons have been cited to explain why home schooling might be responsible for greater achievement. Parental involvement seems to be the single greatest factor accounting for the higher achievement of children schooled in the home. Such involvement involves greater contact between parent and child, rather than mere parental interest in the child. In home schooling, the student-teacher ratio is very favorable, usually 3:1. The home-schooling program allows for individualization and flexibility around the family schedule. Home schooling is also more efficient, often requiring no more than three to four hours of formal or planned learning activities. Therefore, the home school leaves "four or five more hours of the conventional school day to engage in a great variety of cognitive, affective, and psychomotor learning activities . . . ."

Professional educators, who seem overwhelmingly opposed to the home-schooling of children, claim that parents are incapable of educating their children properly at home. These educators apparently assume that unless a parent is a certified teacher, he or she is not qualified to educate his or her children. Since so much depends upon the parents in home schooling, it might seem that they would have to be extraordinarily well-trained. According to Ray, however, parents tend to be good teachers of their own children. Professor Pitman supports this finding:

Parents at home frequently exhibit behaviors that have consistently appeared in the literature on teacher effectiveness.

51. Id. at 36.
52. Id. at 43.
53. Pitman, supra note 2, at 17.
54. B. Ray, supra note 41, at 44.
55. Id. at 44-47.
56. Id. at 46 (citation omitted).
57. Pitman, supra note 2, at 16.
Among these characteristics of effective teachers are (a) teacher variability, viz. the parents use many different methods to teach their children, (b) enthusiasm, (c) task orientation, viz. once the learner is on a task, they have him or her take the time to complete it; which is what many home schoolers find they are able to do with their flexible schedules, and (d) clarity and organization in instruction to the student; which is perhaps easier for home school teachers since they have so few students...58

Very few parents, however, have formal teacher training. Many parents may be deterred from home schooling on the assumption that they are insufficiently knowledgeable to teach their children. The fact is, however, that many parents who teach their children at home quite effectively have not completed college.59 Even those parents who teach at home out of sheer necessity and who feel quite inadequate about their teaching often produce better results than conventional schools.60 Indeed, recurrent observation in articles about home schooling is that it is parental involvement that is the crucial component in the excellence that they achieve.61

Although subject to state regulation, home schools have greater freedom than conventional private schools. Parents schooling their children at home generally are required to create or use a curriculum equivalent to that of a public school. If the curriculum requirements are made reasonably specific (which often is not the case), parents should have little difficulty in complying. The typical curriculum of public schools is not demanding62 and much of the time in the conventional school day is wasted. It is estimated that children in conventional schools spend as little as 18 percent of the school day on substantive course work.63 Even if time in the classroom was efficiently used, and it is not, changing classes, taking attendance, discipline problems, recess, and lunch

58. B. Ray, supra note 41, at 46 (citations omitted).
59. In one study drawn from Christian home schoolers, "[p]arents typically had between 1 and 3 years of college." Pitman, supra note 2, at 17. In another study, "[p]arents typically had no more than a high school education." Id.
60. 1 HOME SCHOOL RESEARCHER 3 (Dec. 1985); 2 id. at 7 (June 1986).
61. See B. Ray, supra note 41, at 15-16.
63. 3 HOME SCHOOL COURT REPORT 3 (Mar.-June 1987) (published by the Home School Legal Defense Association, Great Falls, Va.) (citing study by Taylor).
breaks take time out of the day. Not surprisingly, groups of three to four children can accomplish more work at home than they could at almost any conventional school, whether public or private. The parent and child are still left with much of the day for informal education.

In comparison, children attending formal schools have relatively little time to spend with their parents during the school week. Travel time to and from school, along with six to seven hours of classes, leaves little time at home. Extracurricular activities further reduce time spent at home. If a parent is at home when the child returns from school, after-school play in the neighborhood and homework also limit contact between the parent and child. The most likely contact between parents and children is discussions about school and monitoring of homework. Given these limited opportunities, it should not be surprising if the amount of education in the home, whether formal or informal, is limited under the best of conditions.

C. Are Home Schoolers Socially Deprived?

The most frequently-asked questions about home schooling involve "socialization." Do children schooled at home suffer from a lack of interaction with other children? For many, the idea of children being separated from other children during the conventional school day is unsettling. In a society so steeped in mass culture, such individualism seems to be more threatening than the lack of learning in the classroom.

On the other hand, many parents decide to home school primarily because of the negative socialization at school. These parents object to the value structure of public schools or the type of socialization pejoratively referred to as "peer pressure." When parents, teachers, and other adults counsel young people to avoid drugs, alcohol, or sex, they are struggling against some of the side-effects of socialization or peer pressure. Some parents who decide to home school conclude that less socialization with peers and more contact with parents may be the solution to many of the problems facing children today.

The issue of socialization poses the question of primary control over education. Dr. Raymond Moore of the Hewitt

Foundation, a home-schooling support group, urges that children be kept out of formal schools until at least eight years of age.\textsuperscript{65} He contends that by spending the early years of childhood predominantly with parents rather than with peers, children will fix their values more firmly and become better able to withstand peer pressure. Critics of home schooling, on the other hand, assert that the home cannot provide adequately for all of a child's needs. Beyond the basics of reading, writing, and math, little agreement exists regarding a child's educational needs. Ultimately, the question is whether the parents or the state should decide what kind of education a child needs beyond academic competence in specific subjects.

Even if a consensus existed as to what constitutes adequate socialization, there would remain the further question: how does one test for it? In fact, not much testing has been done. The Ray and Pitman research summaries cited only one test, a recent study by John Wesley Taylor, which "sought to determine if there is a difference in the self-concept of home-schooled children . . . ."\textsuperscript{66} Using a random sampling, Taylor examined student scores on a test known at the \textit{Piers-Harris Children's Self-Concept Scale} (PHSCS). He found that "the self-concept of home-school children was significantly higher than that of conventionally schooled children . . . ."\textsuperscript{67} Pitman commented that "[i]nsofar as self-concept as measured by the PHSCS is an indicator of social development, it would appear that home-schooled children are not socially deprived."\textsuperscript{68} After reviewing this study and the literature, Ray concluded that

the available empirical data suggest that home schooled youth are doing at least as well as those in conventional schools in terms of affective outcomes. Although very limited measured evidence exists regarding the values, attitudes, and socialization of home youth, no tangible evidence was identified that they are inferior to conventional school youth in these areas.\textsuperscript{69}

In addition to self-concept, cognition is also a factor in the social development of children; and, according to very re-

\textsuperscript{65} R. Moore & D. Moore, \textit{Better Late Than Early} 27 (1975).
\textsuperscript{66} Pitman, \textit{supra} note 2, at 19.
\textsuperscript{67} Id.
\textsuperscript{68} Id.
\textsuperscript{69} B. Ray, \textit{supra} note 41, at 43.
cent research published as an appendix to this article, informal teaching by parents in an atmosphere where the child is free to explore and create accelerates the achievement of adult-level reasoning. Professor Ed Marek and Headmaster David Quine have found home-schooled children reach adult-level cognition between ages ten and eleven or twelve versus ages fifteen to twenty for conventionally-schooled children.\textsuperscript{70}

Less formal studies examine the outside activities of children schooled at home. In some instances home schoolers have formed various local support groups in which children join others being schooled at home. In some school districts, home schoolers may be partially enrolled in a public or private school. Many after-school sporting and social activities are open to home schoolers. Thus, while home schoolers may not interact with other children in the environment of a conventional school, they have many opportunities for socialization. How much socialization particular children get depends on what their parents decide they want for their children.

III. THE LAW AND PARENT-CENTERED EDUCATION

In the opinion of this writer, legislative initiatives constitute a more effective manner of promoting parental rights in education than do litigative approaches.\textsuperscript{71} While litigation is important for protecting individual families and for establishing legal principles, litigation can only precipitate the fundamental policy changes necessary to promote parent-centered education; it cannot implement them. The following discussion consequently focuses on legislative concerns, first examining existing regulations affecting home schooling, then suggesting policy considerations designed to expand parent-centered education.

A. Regulation of Home Schooling

\textit{De facto}, home schooling occurs in every state. The states differ, however, in how they respond to this phenomenon. Three responsive patterns have emerged.\textsuperscript{72} In thirty states,

\textsuperscript{70} D. Quine & E. Marek, Reasoning Abilities of Home-Educated Children (1988) (unpublished study). The text of the study is printed herein; see Appendix infra pp. 562-68.

\textsuperscript{71} See Lines, supra note 35, at 122. Even the Home School Legal Defense Association, the primary litigating organization in the field, devotes a good deal of effort to legislative change.

\textsuperscript{72} The most up-to-date catalog of state legislation is an unpublished 50-page summary available through the Home School Legal Defense Association. The information in this paragraph comes from that report.
home schools are recognized by statute or regulation as a permissible option. In eleven additional states, they have been construed by administrators or courts to come within the term "private school." In the remaining states, home schools have been legitimated by earning administrative approval as "equivalent" to public schools. Most conflicts occur regarding the second and third categories. What is a "private school" or "equivalent instruction," and who makes decisions as to categories?

Within each of these three categories, the position of parents will vary from state to state depending on the allocation of authority over education under the state constitution, the language employed by state education statutes, and the opinions of administrators and of the courts. In some states, state or local boards of education have ruled that home schools are "private schools" or the "equivalent of public schools." Where the approval of local school boards is required, these boards may impose additional conditions. If the appropriate administrators withhold approval, the issue may be decided by state administrative process or by the courts.

In litigating whether home schools are "private schools" or the "equivalent" of public schools, home schoolers have met mixed results. There have been a number of constitutional challenges under the due process clause of the fourteenth amendment and the free exercise clause of the first amendment regarding the definition of a "private school." The "equivalency" statutes especially lend themselves to vagueness challenges under the fourteenth amendment due process clause. If the statute does not specify what constitutes equivalency but leaves the question to the relevant board of education, the statute may provide inadequate notice and allow excessive discretion. The parental liberty argument found in Pierce v. Society of Sisters has been raised, often in conjunction with a free exercise claim, but these challenges have met with only limited success.

The legislative situation regarding home schools is continuously changing. With publicity, research on academic performance, and lobbying, opposition to home schooling has been softening. In recent years, states have made it easier to choose home schooling but not without a struggle. While not officially opposing home schooling, the National Education

Association has recommended that teachers meet special requirements approved by the state and that state laws "contain annual approval of home school, monitoring by the local public school, instruction comparable to the public schools, mandated testing, and records of progress, attendance, and instructional time." The principal legal requirements for home schools are:

1. **Teacher Certification:** Only three states (Michigan, Iowa, North Dakota) currently require parents who educate their children in the home to receive teacher certification—a decline over the last few years. In Michigan and Iowa, the certification requirements currently are not being enforced. Alaska has certified teachers supervising parents. Some local districts may condition approval on the certification or other qualifications of the parents;

2. **Local Approval:** Eighteen states and the District of Columbia require approval of home schooling programs by the local school board. This requirement involves a degree of discretion which might make it difficult for parents to home school;

3. **Testing:** Twenty states currently require testing, up from only two in 1980;

4. **Attendance:** Generally, the states require the same number of days of instruction for home school as for public-school students. Some states have special requirements on the number of hours of class instruction per day. Increasingly since 1980, states have been requiring parents to keep records of attendance; and

5. **Curriculum and Textbooks:** Curriculum and textbook requirements are various. They may be stated specifically in a statute or part of the decision process by which the school board or superintendent approves home schools or determines the proposed instruction to be the equivalent of that of public schools. Some states have

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74. 3 Home School Court Report, supra note 63, at 10 (quoting and summarizing Report on Home Schooling by NEA Standing Committee on Instruction and Professional Development, October 11, 1984).
75. Id. at 5. Compare the situation as of 1980, L. Kotin & W. Aikman, supra note 6, at 119.
77. Id. See also L. Kotin & W. Aikman, supra note 6, at 120.
78. See Home School Legal Defense Ass'n report, supra note 72.
required parents to keep a portfolio of work by the student.\textsuperscript{79}

The discretion and ambiguity inherent in some of these standards sometimes results in controversies between home schoolers and superintendents of local school boards opposed to home schooling.\textsuperscript{80} Administrators may have concerns about home schooling which range from educational quality to their own workload in approving home-school programs. The \textit{Home School Court Report} contends that a number of states have imposed attendance requirements and other monitoring activities as a way of justifying or increasing the amount of money allocated to public school districts in which home schoolers reside.\textsuperscript{81} If school districts are receiving money for the home schoolers, school administrators may feel obliged to justify the funding through increased regulation. School authorities have a strong financial incentive to bring home schoolers into the public schools or to attain enough control to justify receiving equivalent sums of money. In some school districts, the conflicts have been worked out by allowing home schoolers partial enrollment in public schools.

\textbf{B. The Future of Regulation over Education}

Compulsory attendance laws have been obstacles to parents who want to teach their children at home in those states which did not explicitly provide for that option. Parents who decline to send their children to an approved public or private school and are unable to get approval of home schooling may face criminal penalties. With nineteen states enacting legislation permitting home schooling during the years 1982-87, the law has been acknowledging the prerogative of parents to exercise greater control over the education of their children, thereby limiting the coercive force of compulsory attendance laws.

What do the legislative victories for home schooling mean? Despite the relaxation of barriers, home schooling is not likely to be an option chosen by many parents. While

\textsuperscript{79} See L. Kotin \& W. Aikman, \textit{supra} note 6, at 116-18.

\textsuperscript{80} A particularly well-detailed account of such a conflict appears in S. Arons, \textit{supra} note 64, at 77-86. See also L. Kotin \& W. Aikman, \textit{supra} note 6, at 104-17, 124-34 for a description of the administrative and trial processes.

\textsuperscript{81} 3 \textit{Home School Court Report}, \textit{supra} note 63, at 10.
home schooling has become more accepted and widespread, it is inherently limited in its growth. Most home-school families are two-parent families in which the mother does the teaching. With the increase in single-parent families and families with both parents working outside the home, home schooling is impractical for many.

Nevertheless, home-schooling legislation has benefited education in general by shifting the emphasis from attendance to achievement. Although many of the newly-enacted laws require parents to keep records of attendance, these requirements are designed to assure that the child is actually studying rather than that he or she is in attendance. Moreover, many states require testing of children. If the trend of home-schooled children scoring higher on standardized tests continues, it will further embarrass conventional schools and support a trend in education of demonstrating achievement rather than mere attendance.

Some recent reforms require high school students to pass standardized tests in order to graduate. Those who fail the tests receive a certificate of attendance rather than a diploma. By the same rationale, home schoolers who pass the tests would receive diplomas, regardless of attendance. In fact, states already provide a "General Educational Diploma" (GED), usually for those who have dropped out of school and want to complete their high school education. The GED, however, is generally not considered to be a desirable diploma.

The repeal or relaxation of compulsory attendance laws coupled with the use of achievement testing would permit alternative forms of education to become available. In the last few years, privately-owned "learning centers," which offer remedial and enrichment tutoring, have sprung up across the country. These centers are achievement-oriented, as measured by regular standardized testing. Many of them use both a live teacher and computer-aided instruction. Some centers are attempting to become certified as schools, but without adopting the conventional-schooling model.82 Learning centers or nonconventional schools could offer compressed coursework in individual or small-group tutorials. Students might well complete the work of a regular school year in half the time. (Recall that most home schoolers complete their study in three to four hours).

82. See generally Gordon, supra note 49.
The learning center option would present both opportunities and problems. Parents and students would have to decide what to do with the extra time. Should students complete two grades in one year or add enrichment courses such as art, music, drama, or foreign languages? Should they engage in other activities, such as sports, for the remaining hours of the day or do some kind of work—paid, volunteer, or in the home? The problem with so many opportunities is not only the difficulty of choice, but that of supervision and logistics. Currently, single and working parents are struggling with the care of their children both before and after school to cover their working hours. How could they possibly handle transportation and the other problems related to a compressed school schedule?

This article does not attempt to answer these questions, but only to connect them to the discussion of other policy issues being considered without reference to education. Child-care legislation is currently before the Congress and state legislatures. Employers are beginning to provide childcare in the workplace. Corporations seem to be responding to employee demands for this option, not only for convenience, but for closeness with their children. As parents and children interact in the workplace, it is important to appreciate the "relationship of reciprocal enforcement between . . . child labor regulations and compulsory attendance legislation."88

One of the consequences of child labor legislation is that children must be cared for by someone other than the parent while the parent is in the workplace.84

Reflection on work at home laws reveals that they have a similar impact on parental attempts to retain their natural primacy over their children's education as do compulsory school attendance laws and child labor laws. Labor legislation has authorized regulations which prohibit work at home in a number of industries.85 Traditionally, the restriction has been aimed at the textile industry. Its major significance today relates to computer work. By working at home, whether sewing or data-processing, parents can remain in regular contact with their children. For the single parent, "home work" can simplify life and save money by eliminating commuting time and reducing the need for child care. Increased parent-

83. L. Kotin & W. Aikman, supra note 6, at 37.
84. As in education, Massachusetts was in 1842 the first state to enact child labor legislation. See L. Kotin & W. Aikman, supra note 6, at 45.
child contact also offers more opportunities for parents to educate their children, at least informally. Parents who work at home might even decide to teach their children at home, just as many parents who home school have begun small businesses in order to work while educating their children.\(^{86}\)

**CONCLUSION**

Just as changed conditions in society dictate policy changes in the workplace and in child care, it is possible to make changes in education policy with a view towards integrating the family. It is well-known that the success of children in conventional schools is related to parental support.\(^{87}\) Concern for academic achievement should foster policies assuring parents greater opportunities to control the education of their children. Education is so important to a democratic government that it cannot be left completely to professionals and experts or be limited only to conventional schooling.

\(^{86}\) In a much publicized story, two sons educated at home won scholarships to Harvard University. The family had no formal curriculum and the "do-it-yourself" schooling included growing their own food, breeding prize-winning goats, and operating a bed-and-breakfast inn. *Home-Based School Cranks Out Winners*, L.A. Times, May 4, 1984, at 6, col. 1.

\(^{87}\) *See D. Ravitch & C. Finn, supra note 42.*
REASONING ABILITIES OF HOME-EDUCATED CHILDREN

DAVID NEAL QUINE*
EDMUND A. MAREK**

Much of the literature on home education centers either on reasons why parents should choose home education over the conventional classroom or the resource materials available to parents of home educated children. However, little has been written about the children themselves — specifically about the intellectual development of home-taught children. An experiment was designed and the following question posed: How is the development of cognitive intellect affected by non-conventional schooling with children aged six to thirteen?

Four years ago, a unique concept in schooling was proposed to integrate home instruction and school instruction. Forming a partnership with the parents of the home educated children, the Pathways School emerged with the following characteristics:

- classes met for two days per week
- each class period was two and a half hours in duration
- instruction was in math and science
- all other instruction was provided by the parents at home
- children's ages ranged from six to thirteen years

The central purpose of this school was to promote the maximum intellectual growth of its students. For this experiment intellectual growth was operationally defined as the development of cognition from preoperational thought through concrete and formal operational thought. In a study of the

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* Headmaster, Pathways School, Richardson, Texas.
** Director, Science Education Center, The University of Oklahoma, Norman, Oklahoma.


intellectual growth of students in small rural schools, Simpson and Marek described concrete operational thinking as being able to reason logically, but not being able to extend this reasoning beyond the perception of direct or concrete experiences, events, and/or objects. Formal thinkers can reason beyond perception, but then stay in the bounds of logic and use postulatory-deductive systems.

The Pathways School incorporates a teaching procedure that was developed from this model of intellectual development. This teaching procedure, which engages children in the active exercise of their rational powers, is called the learning cycle. Using materials and basic directions provided by the instructor, the student first explores the concept to be learned. That learning-cycle phase is called exploration. Next, under the guidance of the instructor, the students combine their ideas, data, and observations, which the exploration produced, and identify the concept inherent in the data. That learning-cycle phase is referred to as conceptual invention. During the conceptual invention phase the language of the concept is introduced. The students next use the newly invented concept in several different ways. They might engage in additional activities, work problems, answer questions, pursue individual investigations, and/or read about the uses and further descriptions of the concept. This phase leads the students to expand the concept—or idea—they have just met and is called the expansion of the idea. With such student-centered experiences, children move through each level of intellectual development faster than children exposed to expositional instruction.

Pathways School was founded upon the Piagetian Model; therefore, the school was concerned with two major questions about the intellectual development of its students:

1) How do the children who attend the Pathways School compare with other home-taught children regarding intellectual development?

2) How do these two groups compare with their age-mates, who attend conventional classrooms, regarding intellectual development?

I. Data Gathering Procedures

Data used to answer these two questions were obtained from a sample of thirty students ranging in age from 72 to 131 months. Pretests and posttests of nine Piagetian tasks, which were developed to measure reasoning abilities, were administered to each child. This design allowed for comparisons in reasoning scores. Individual clinical interviews of the thirty students included 1) Conservation of Number, Solid Amount, Liquid Amount, Length, Weight, Area, and Volume; 2) Equilibrium in a Balance; and 3) Combinations of Colored Beads. Students' responses to these tasks demonstrated their 1) conservation reasoning, 2) ability to do ratios, and 3) combinational logic, respectively. This combination of tasks provided us with a representative cross-section of reasoning abilities and, therefore, each student's developmental level. Each task was scored in the standard manner and responses were classified as pre-concrete (I), early concrete (IIA), concrete (IIB), early formal (IIIA), or formal (IIIB). A composite score for each child's pretest determined his/her intellectual developmental level as either concrete operational, transitional, or formal operational. Because of the small sample sizes in this study, some of the findings were collapsed into two categories: concrete and post-concrete (transitional and formal).

Following the pretests, each group of students received nine months of instruction. The experimental group (Pathways School students) received intensive experiences using the learning cycle procedures and materials. The comparison group (parents without formal knowledge or education of the Piagetian Model or the learning cycle) was allowed to create a learning environment free from specified controls. In other words, parents within this group independently selected curricula materials and provided learning activities for their children according to their own choices.

No attempt was made to regulate or specify the structure of the learning environment in the comparison group. The

7. Id. at 3-26.
8. A complete explanation and discussion of these tasks can be found in J. Renner & E. Marek, The Learning Cycle and Elementary School Science Teaching (1988).
9. See id. at app.
comparison and experimental groups were then posttested in individual "clinical" interviews with the same set of tasks used for the pretests. Again, a composite score was used to assess developmental level.

FINDINGS AND IMPLICATIONS

Although the research design was sound and appropriate, we discovered that the students in the two groups were experiencing similar treatments. The students in the experimental group received instruction utilizing pre-written activities that promoted intellectual development. The students in the comparison group had the same type of experiences even though the activities were not pre-written learning cycles. The latter occurred since parents 1) redesigned traditional curriculum, 2) provided extensive field trip type learning experiences, and/or 3) allowed their children to explore their environment during extended free time. Obviously, all of these children were given ample opportunities for intellectual growth.

Approximately half of each group began the investigation with a Piagetian classification of concrete operations. The experimental group (mean age = 104 months) was composed of ten concrete operational and nine post-concrete operational students. The comparison group (mean age = 107 months) was proportionally similar with six concrete operational and five post-concrete operational students. No statistical differences were found between the two groups regarding pretest means of either age or developmental level. After the nine months of "treatment," pre/post test gains on intellectual development were measured with a $t$-test. The gain comparing the two groups was not statistically different. (See Table 1.)

<p>| TABLE 1. INTELLECTUAL DEVELOPMENT OF TWO GROUPS OF HOME SCHOOLED CHILDREN |
|-------------------------------|-------------------------------|
| <strong>PRE-TEST</strong>                  | <strong>POST-TEST</strong>                |</p>
<table>
<thead>
<tr>
<th>COMPARISON</th>
<th>EXPERIMENTAL</th>
<th>PIAGETIAN STAGE</th>
<th>COMPARISON</th>
<th>EXPERIMENTAL</th>
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<tr>
<td>(6) 55%</td>
<td>(10) 53%</td>
<td>CONCRETE</td>
<td>(1) 9%</td>
<td>(5) 26%</td>
</tr>
<tr>
<td>(5) 45%</td>
<td>(4) 21%</td>
<td>TRANSITIONAL</td>
<td>(7) 64%</td>
<td>(6) 32%</td>
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<tr>
<td>(0) 0%</td>
<td>(5) 26%</td>
<td>FORMAL</td>
<td>(3) 27%</td>
<td>(8) 42%</td>
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</table>

Since group-gains for each group on intellectual development were parallel, the researchers wanted to know how these two groups, taken together, compared with Piaget's original findings as well as current national averages. Piaget originally said that children began to move into the concrete operational stage between six and seven years of age. He went on to say that children began to move out of this stage "at about 11 or 12 years . . . ."11 In 1972, however, Piaget wrote that the students used in the original investigation were taken from "the better schools in Geneva . . . . which was perhaps a somewhat privileged population."12 He suggested that the point at which the exit from concrete thought begins is "between 15 and 20 years and not 11 and 15 years."13

The data from this study seem to suggest that students taught at home move into formal thought between the ages of ten and eleven. These particular samples closely parallel Piaget's original "privileged" group. As can be seen from figure 1 below, both Piaget's "privileged" group and the homeschooled groups far surpass the "average child" or what is referred to as national averages.

Interpretations of these comparisons are quite provocative: What does this say about—conventional schools? home schooling? the students in each school environment?

13. Id.
The data from this study suggest that the parents of the home educated students gave their children the right kinds of experiences to foster intellectual development. In other words, the parents in this sample provided learning experiences similar to those suggested by Piaget as critical to intellectual development. From this study, one could infer that the comparison group children had experiences similar to those of the experimental group, even though the parents in the comparison group had no formal education of the Piagetian Model or its inherent teaching strategy—the learning cycle. Furthermore, this sample of home taught children (comparison and experimental groups) was in a learning environment that caused intellectual growth that actually exceeded Piaget's original "privileged population."

**CURRICULUM CHOICES**

Although a wide array of curriculum materials is available from which to choose, very few are specifically designed to provide learning experiences critical to intellectual devel-
opment. Listed below are published materials fostering intellectual development; we invite you to investigate them.

<table>
<thead>
<tr>
<th>GRADES</th>
<th>TITLE</th>
<th>PUBLISHER</th>
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<td>Elementary School</td>
<td>Good Science for Home Schools</td>
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<td></td>
<td></td>
<td>El Cayon, CA 92022</td>
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<td></td>
<td>Making Math Meaningful</td>
<td>The Cornerstone Curriculum Project</td>
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<td></td>
<td></td>
<td>2006 Flat Creek, Richardson, TX 75080</td>
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<td>Junior High School</td>
<td>Investigations in General Physical Sciences</td>
<td>Science Education Center, University of Oklahoma, Norman, OK 73019</td>
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<tr>
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<td>Investigations in the Natural Sciences: (Biology, Chemistry, or Physics)</td>
<td>Science Education Center, University of Oklahoma, Norman, OK 73019</td>
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